Diagnosis and minimally invasive treatment of chronic discogenic low back pain

Valorization

Discogenic Low Back Pain: "burden for patient and society"

Valorization is a broad concept encompassing knowledge transfer from the research sector to other sectors for personal, social and economic value.[1]
Low back pain is a vast problem worldwide causing a huge burden for the patient and for society, that is still growing. It is the main cause of years lived with disability in the western world.[2]
Chronic discogenic low back pain (CD-LBP) is defined as pain originating from the intervertebral disc, lasting for more than 3 months. The complaints of patients with CD-LBP result in medical consumption, absenteeism from work and disability. The recently published results from the Global Burden Group showed that chronic low back pain is a worldwide problem that is still growing.[3] The growth is attributed to aging and the growing world population. The incidence of CD-LBP is estimated at 40% of chronic low back pain.[4]

The quality of life of patients with low back pain is reduced. In a study from our group evaluating the burden and costs of CD-LBP in patients selected for participation in a randomized controlled trial on a new treatment option, almost half of the patients with CD-LBP, (46%,) reported severe pain (>7 of NRS 0-10) , and 54% suffered moderate pain.[5] This is in comparison with the findings of a European prevalence study in chronic pain patients[6], that showed 34% have severe pain and 66% have moderate pain.

In 2007 a Chinese research group published a spectacular decrease in pain and improvement of quality of life, after an intradiscal methylene blue injection in a highly selected group of patients with CD-LBP.[7] The publication reported in the methylene blue group, a mean reduction in VAS of 52.5 %, a 35. 8% mean reduction in the Oswestry disability scores and a 91.6 % satisfaction rate compared with 0.70%, 1.68%, and 14.3%, respectively, in the placebo treatment group. These astonishing good results gave rise to skepticism, and if the results of that Chinese study would be true, this intervention would revolutionize the treatment of low back pain, rendering spinal surgery for back pain essentially obsolete.[8] As with any treatment, the results of this study need to be replicated.

What did we find in our studies?

Diagnosing discogenic pain remains a difficult and controversial discussion. Since physical examination and radiology will only give an indication of discogenic pain, pressure-controlled discography remains a very useful test in the workup of diagnosing discogenic low back pain, in spite of the possible disadvantage of accelerating disc generation.[9] In

the current thesis, we refuted the hypothesis that outcomes of discography are flawed by the transfer of pressure to adjacent discs.

The promising results of intradiscal methylene blue injection could not be reproduced in our multicenter RCT, which copied exactly the protocol of the Peng et al.[10] No significant differences in outcome were found between the methylene blue and the placebo control group. Thus, the use of intradiscal methylene blue injections could not be supported.[11]
At the moment only intradiscal biacuplasty is recommended for the minimally invasive treatment of CD-LBP. Biacuplasty is a cooled radiofrequency technique aiming to destroy painful nociceptors in the posterior part of the disc.[12-14]

When all therapies such as conservative therapy, medication, minimally invasive treatments fail and surgery is not an option, neurostimulation could be considered.
The sustained effect over 12-months of high-frequency 10kHz stimulation of the spinal cord in chronic low back pain was documented in the literature in patients with suspected CD-LBP.[15] Our prospective study with DRG L2 stimulation in a highly selected group of patients with CD-LBP showed a promising result after 12 months.[16]
Further studies are needed to define if there is a place for neurostimulation in CD-LBP in non-operated patients and to find what place it should have in the treatment algorithm of CD-LBP.

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